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PHILOSOPHICAL TRANSACTIONS

Februar. 21. 1678.

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An Experimental Discourse of Quicksilver growing hot with Gold; by B. R. Some Observations on several Passages of the two last Months Transactions; relating to some, till now un-observed, Qualities in the Air; to the Mixing and Fermenting of Liquors in vacuo; to the History of Birds; the Anatomy of the Trunks of Vegetables; Baroscopes, &c. Some Experiments touching Animals; others, about producing Ice free from bubbles in vacuo, and giving by means of the Air-pump certain proprieties to things, which they never had before; others, touching Gun powder, and they way of discovering the quantity of Air contained therein, together with its degree of Compression in that body, &c. An Account of some Books; I. COURS d'ARCHITECTURE, Premiere partie; par M. Francois Blondel. II. Dr. Henry Moore's Remarks upon two late Ingenious Treatises, &c. An INDEX for the Traits of this whole Year.

Of the Incalcescence of Quicksilver with Gold, generously imparted by B. R.

The Introduction of the Publisher.

THough the following discourse was by the Author of it made part of a short *Examen* of the supposed Sympathy between Gold and *Quicksilver*, (which it self belongs to another Treatise;) yet the worthiness of the subject, and the great curiosity that is observed among many Virtuosi, (not only *Chymists*, but others,) about *Mercurial* Preparations and Experiment, made me think I

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might do them an acceptable piece of service, if I could prevail with the Author to sever them from the papers, whereto he had annex'd them, (but to which they seem'd not absolutely necessary) though upon the conditions he judg'd requisite to insist on.

And since I venture to impart before the time these things unto the Curious, I hope and desire, they will be so equitable as to indemnifie me to the Author, and not fruitlessly endeavour to put a person, that has already given so many proofs of his propensity to gratifie Ingenious men, upon making unseasonable answers to any Verbal or Epistolary Questions about things, wherein some considerations, that he thinks are not to be dispensed with by him, do as yet injoy him silence.

Now, to gratifie the Curious amongst Strangers, as well as those of our own Nation, the Publisher was not unwilling to give this discourse in Latin, as the Author hath been pleas'd to impart it in English.

Follows the Discourse it self.

Of Mercury growing hot with Gold; Communicated by B.R.

1. — **B**Ut that what I have hitherto said, may not be drawn to the disparagement or discouragement of those Spagyrist's that possess or aspire to the nobler *Arcana* of Gold and Mercury, I must mind you to take notice, that what I have objected against the supposed Sympathy of Gold and Quick-silver, is spoken only of common Mercury, that being It whose Sympathy with Gold is wont to be celebrated. And though perhaps, a good part of the things I have alledg'd will be found applicable even to true running Mercuries; yet I would not be thought to deny, that there may be

De Mercurio cum Auro incalescente, Diatriba B. R.

— **V**Erū enim verò, ne quæ hactenus disserui eò torqueantur, ac si laudes animosque viris illis Spagyricis demere velimus, qui Nobiliora Auri & Argenti Vivi arcana possident ambiuntve, monendus es mihi ut advertas, me quod contra suppositam Auri & Mercurii sympathiam objeci, de Vulgari duntaxat Mercurio dictum velle, cum ille sit, cujus cum Auro sympathia celebrari sueverit. Et quamvis fortè magna à me dictorum pars, consultâ experientiâ, ad nativum etiam Mercurium currentem extendi possit; non tamen censere Lectorem velim, negare me, dari Argentum vivum posse

be a Quicksilver more subtle and penetrant than that which is common, and that those Chymists, that ground the sympathy of Gold and Mercury upon the Operations of a more Philosophical Mercury, may likewise argue for it more speciously than Vulgar Mercury will enable them to do. And to let you see on this occasion that I am not unkind to the Chymists, I will annex part of a Paper, written to a Friend to give him my Opinion about *Mercuries Incalescence with Gold*.

2. — And now I shall abruptly begin this Section with the consideration of a Probleme much agitated among the Curious, especially those that pretend, whether truly or vainly, to have more than ordinary insight into Chymistry: Among whom I find it hotly disputed, whether or no there be any such thing as a Mercury that will heat with Gold, that is, which by being barely mingled with that metal reduced to fine parts, will, without the help of external heat, produce upon the commixture of those two Bodies very sensible heat.

3. The Affirmative of this Question is positively asserted by some Writers and others, that pretend to the Transmutation of Meta's: For among these I have met

posse Vulgari subtilius & penetrantius, istosque Chymicos, qui Auri & Mercurii Sympathiam niti volunt Mercurii magis philosophici operationibus, contendere etiam pro ea multò speciosius posse, quàm si Vulgaris aurtaxat Mercurius adhibeatur. Atque ut hac occasione testatum faciam, me viros Chymiae addictos nequaquam averfari; subjungam hic scripti mei partem, ad Amicum quendam idcirco exarati, ut meam ipsi de Mercurii cum Auro Incalescentia opinionem depromerem.

— Nunc verò abruptè Sectionem hanc ordiar Problematis cujusdam discussione, quod diu multumque inter Curiosos fuit agitatum, eos imprimis, qui, sive verè sive falsò, obtendunt, se intimiores, quàm vulgo concessum est, Chymiae recessus adiisse: Inter quos id calidè disceptari reperio, Urum ejusmodi detur Mercurius, qui incalescat cum Auro, id est, qui, dum nudè Metallo isti, ad minutas admodum partes redactò, commiscetur, citra externi caloris administriculum, factò solummodò duorum illorum corporum cramate, sensibilem valdè calorem pariat.

Hujus Quaestionis Affirmativam mordicè tenent nonnulli Authores, alique qui Metallorum Transmutationem sibi vendicant; Inter hos quippe, nonnullos videre mihi

met with some that ascribe this vertue of Incallescence with Gold to the Mercuries extracted, as they suppose, from some compleat Metals, which are therefore in their Phrase styl'd *Mercurii Corporum*, or the *Mercuries* of the Metalline Bodies.

4. But the Negative part of the Question is more generally maintain'd, being not only embraced by far the greatest number of Philosophers and Physicians, but assented to by many of the more Learned *Spagyrist*s themselves, especially the Modern, divers of whom have reckon'd this sort of Mercuries among the *Chimera's* and *Non-Entia* of bragging Chymists. And I have the less wondered to find many Learned men so averse from believing this Incallescence of Mercury and Gold, because, having purposely enquir'd of several prying Alchymists, that have spent much labour, and many Trials, to find out things of this kind, and have of late years travelled into many parts of *Europe* to pry into the Secrets of other Seekers of Metalline Transmutations, they have apart ingenuously confessed to me, that they never actually saw any Incallescent Mercury, though they sometimes heard it boasted of by Alchymists; whose bold pretensions had the less weight with

mibi licuit, qui hanc Incallescendi cum Auro virtutem Mercuriis adscribunt, ex perfectis quibusdam corporibus, ut autumant, elicitis; quos idcirco Mercurios Corporum, sive Mercurios corporum Metallicorum, nuncupare solent.

At Negativam tuentur multo plures, iique non modò Philosophi & Medici, sed & ex ipsis Spagyricis doctrinâ clariores, inprimis ex neotericis & modernis, quorum non pauci hanc Mercuriorum familiam Chimæris & Non-entibus grandiloquentium Chymistarum accensent. Atque eò minùs mirabar, complures viros doctos ad eò esse ab hoc Mercuri cum Auro Incallescentiæ assensu alienos, quia, consultò quæsit à me plures ex Alchymistis sagacioribus, qui multum impenderant opera, plurimæque Experimenta peregerant ad hujus generis arcana depromenda, quique per aliquot annos novissimos varias Europæ partes permearant, ut aliorum, qui Transmutationes Metallicas vestigant, secreta rimarentur, illi, inquam, singuli seorsim à me rogati ingenuè apud me fassi sunt, se revera nunquam incallescentem ullum Mercurium vidisse, licet id quandoque jactatum ab Alchymistis audivissent; quorum jactabundè obtentus eò minùs apud me in hoc negotio valebant, quòd à longo jam tempore notaveram, quantam
Fraus

with me in this matter, because I had long taken notice, how great a confidence, fraud, or ignorance (for I would not think all those *Cheats* that are *mistaken*,) can give to some of that sort of men that I am speaking of. Inasmuch that one of them having impos'd upon an honest Chymist, well known and much employed, with a pretended incalcescent Mercury, they had the confidence to bring it me to convince me of the Experiment; but upon due Trial, I found not any sensible degree of that great heat that was promised. pretended to be salved by I know not what unsatisfactory excuses.

5. But notwithstanding all this, having for the reasons I have long since expressed in other Papers (and for some other Considerations that I have not judg'd fit to mention) lookt upon *Mercury* as a Body which is not necessarily so homogeneous as 'tis supposed, the Opinion I most lik'd of was, that of a possibility of an Incalcescent Mercury. For notwithstanding the vulgarly supposed Similar nature of Quicksilver, which I willingly confess to be great enough to be admirable, it was yet congruous to my Principles, that a Liquor, which in weight, colour, total volatility, &c. was answerable to all the essential Properties for which a body is called *Mercury*, might yet have

Fraus vel Ignorantia (non enim omnes illos haberi impostores velim qui hallucinantur,) in nonnullis hujusmodi, de quibus loquor, viris fiduciam parere possint; quæ sanè tanta erat, ut illi, cum eorum unus, bonæ frugis Chymistam, multis notum multisque operam suam locantem, supposito Mercurio incalcescente fefellerat, eò fiduciæ abriperentur, ut apud memet se sisterent, de Experimento illo me convicturi. At, re ut par erat exploratâ, nullum percepi sensibilem illius caloris gradû, quem promiserant.

Which miscarriage was vainly not what unsatisfactory excuses.

Verum enimvero, his omnibus nequicquam obstantibus, cum ex rationibus dudum in alio scripto à me expositis, aliisque de causis hic non memorandis, Argentum vivum, corpus reputem, quod non necessariò tam sit homogeneous, ac passim habetur; illa mihi opinio præ cæteris allubuit, quæ Mercurii incalcescentis possibilitatem adstruit. Etenim, non obstante vulgò suppositâ Mercurii (ut sic dicam) Similaritate, quam ad eò eximiam esse puto, ut parere admirationem possit, meis tamen Principiis consonum erat, Liquorem quendam, qui pondere, colore, totali volatilitate, &c. omnes referebat proprietates essentielles, quarum respectu corpus aliquod Mercurii nomine venit, habere tamen posse internam ejusmodi

partinæ

an internal constitution of parts, that might make it in some unobserved things considerably differing from common Mercury. And among these differing Qualities I did not know but one might well be, that of growing hot with Gold. And this Opinion I judg'd the more reasonable; because, having devised two waies (unpractised that I know of by any Chymist) the one, to discover whether a clean and carefully distilled Mercury might not be a compounded Body, and have in it parts that were not; Mercurial and the other, out of such a fine distill'd Mercury to separate parts, and that in no despicable number, that are plainly heterogeneous; I found upon trial, that both the Methods I had thought on would succeed, which warranted me to think it possible, that a Mercury very fine and clean, and even purg'd by Sublimations and Distillations, may by Art have been made to assume and incorporate with it a multitude of heterogeneous Corpuscles, not to be discover'd, much less separated, (as those of *Tinn*, *Lead*, &c. may be) but by a skilful Artist.

6. This in the general may suffice to make me suspend my Judgment about the Probleme formerly propos'd, and to en-

partium diathesin, quæ in nonnullis hæcenus non observatis insignem illi à Mercurio vulgari discrepantiam conciliare queat: Atque has inter Qualitates differentes nesciebam annon ea recenseri meritò posset, quâ incalescit cum Luro commixtus. Atque hanc Opinionem rationi eò magis consentaneam arbitrabar, quòd, excogitatâ à me duplici methodo (hæcenus à Chymicorum nullo, quòd sciam, in praxin versâ,) unâ quidem, ut manifestum redderem, essetne purus curatèque distillatus Mercurius, corpus compositum, partesque contineret non-Mercuriales; alterâ verò, ex purificato ejusmodi & distillato Mercurio partes separandâ non paucas manifestò heterogeneous; experiundo comperi, utramque illam methodum à me inventam successu gaudere: Id quod auctoramentum mihi haud leve erat, ut possibile existimarem, Mercurium valde defecatum, quin & per sublimationes & distillationes repurgatum, Arte posse eò redigi, ut assumat secumque conflet heterogeneousorum corpusculorum multitudinem, quæ non nisi à perito Artis filio detegi, multò minus segregari queant (ut fieri de Stanneis, Plumbeis, &c. corpusculis potest.)

Hoc generatim suffecerit, ut meum de Problemate suprâ proposito judicium suspendam, & ad experimenta sumenda properem, quibus

gage me to *make trials*, whether some of these heterogeneous particles that I found reducible with Mercury into a lasting Mercurial flux, might not so alter it as to dispose it to heat with Gold. But this was not sufficient to determine me to an *assent*; for to oblige me to admit incalcescent Mercuries, it ought not to suffice, that 'tis possible or even probable, that there *may be* such, but there was necessary some positive proof that there *are* such; and that also through Gods blessing my Trials afforded me about the year 1652.

7. Some years after I was in possession of this Mercury, I found in some of their Books, that Chymists call Philosophers, some dark passages, whence I then ghes'd their knowledge of it, or of some other very like it; and in one of them I found, though not all in the very same place, an Allegorical description of it, the greatest part of which was not very difficult for me to understand; but not finding there any notice taken of the property of this Mercury to grow hot with Gold, I was induced to suspect, that either they had not the knowledge of it, or judg'd it unfit to be spoken of. But you will, I suppose, expect from me rather Narratives than Conjectures. And indeed 'tis but
rea-

quibus palam reddatur, Annon alique ex particulis illis heterogeneis, quas cum Mercurio in durabilem fluxum Mercurialem reduci posse deprehendi, ita alterare eum possint, ut ad incalcescendum cum Auro ipsum disponant. At non erat hoc satis ad eliciendum à me assensum; ut enim ad Mercurios incalcescentes admittendum adduceret, sufficere non debebat, possibiles eos esse, vel etiam probabiles, sed reverà tales dari manifestà probatione erat evincendum: Et hoc ipsum quoque, favente Deo, Experimenta mea, Anno 1652. circiter, comprobant.

Post aliquot ab eo tempore annos, quo Mercurium hujusmodi jam possidebam, in quibusdam eorum, quos turba Chymica Philosophos nuncupat, libris obscura quadam loca inveniebam, unde tunc eorum de ipso, vel alio aliquo perquam ei simili cognitionem conjectabam; atque in ipsorum uno reperiebam (non tamen rem totam in uno plane eodemque loco) descriptionem ejus Allegoricam, cujus pars maxima adeo difficilis intellectu mihi non erat: At cum nihil ibi notatum viderem de illa Mercurii hujus proprietate, quâ calorem cum Auro acquirit, in suspicionem inciði, eos vel cognitione illius fuisse destitutos, vel eam silentio premendam censuisse. At Tu sine dubio facti potius Narrationes, quàm Conjecturas à me ex-
pectas,

reasonable, that, having but *mentioned* to you a Phænomenon whose Credibility is by many denied, I should take notice of some Circumstances fit to *bring credit* to it. And I shall the less grudge the pains of setting down several particular Phænomena, because I presume you have not met with them, and because also it may gratifie some of your Chymical friends, who may *have* or *discover* some noble Mercury, by helping them to examine it, and to try whether it resemble ours.

8. That I might not then be imposed on by others, I several times made trial of our Mercury, when I was all alone. For when no Body was by me, nor probably dreamt of what I was doing, I took to one part of the Mercury, sometimes half the weight and sometimes an equal weight of refin'd Gold reduced to a Calx or subtle Powder. This I put into the palm of my left hand, and putting the Mercury upon it, stirr'd it and press'd it a little with the finger of my right hand, by which the two Ingredients were easily mingled, and grew not only sensibly but considerably hot, and that so nimbly, that the Incallescence did sometimes come to its height in about a minute of an hour by

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spectas. Et sanè aquum omnino fuerit, ut, cum mentionem duntaxat fecerim phænomeni, cujus à multis negatur credibilitas, circumstantias nonnullas annotem, quæ fidem ei conciliare valeant. Atque eò minùs laborem detrectabo particularia aliquot phænomena hîc tradendi, tum quòd ea Tibi non occurrîsse autumem, tum quòd ea grata fore putem quibusdam amicis tuis Chymicis, nobilem quendam vel jam posside- huius vel paraturis Mercurium, ut scil. hoc qualicumque scripto nostro ad eum examinandum, & an referat nostrum, experiundum, juventur.

Itaque, ne mihi imponerent alii, pluries Mercurium nostrum, quando solus eram, explorabam. Etenim quando nemo mihi aderat, neque quisquam per somnium quid agerem conjiceret, sumebam unam partem illius Mercurii, ad Auri, in calcem vel pollinem redacti, pondus quandoque dimidium, quandoque æquale. Hoc polline volæ manus sinistra immisso, & Mercurio superinfuso, utrumque simul agitabam, premebamque nonnihil digito manûs dextræ; quâ ratione duo hæc Ingredientia facile commixta, non modò ad sensum sed insigniter incalcebant, idque adeò properè, ut incallescencia interdum unius horæ circiter minuto, indicante idipsum horologio minutis instructo, ad æquum perveniret. Succedebat hoc Experimentum,

a Minute-Clock. I found the Experiment succeed, whether I took altogether, or but half as much Gold as Mercury; but the effect seemed to be much greater when they were employed in equal weight. And to obviate a suspicion, which, though improbable, might possibly arise, as if the immediate contact of the Ingredients and the skin produc'd a sense of heat, which was not due to the action of the Metals upon one another; I had the Curiosity to keep the mixture in a paper, and found not its interposition to hinder me from feeling the Incallescence, though it much abated the degree of my sense of it.

9. I tried also the same Mercury with refin'd Silver reduc'd to a very fine powder; but I could not perceive any heat or warmth at all; though I am apt to think, that if I had had a sufficient quantity of leaf-silver to have made the experiment with, I should after some time have produced an Incallescence, though much inferiour to what the same quantity of Mercury would produce with Gold; but this only upon the by. I shall now add, that to the end I might not be thought to impose upon my self, I did not only make trial in my own hand, when 'twas in different tempers as to heat and cold, but I did it in the hands of o-

thers,

mentum, siue aequalem sumerem siue dimidiam Auri quantitatem; effectus tamen multò videbatur insignior, quando aequali pondere adhibebantur. Atque, ut suspicioni, quæ, licet improbabilis, subnasci tamen posset, occurrerem, immediatum scil. Ingredientium & Cutis contactum producere posse sensum Caloris, qui non debeatur Metallorum in se invicem actioni, curiositate ducebar mixturam hanc in charta servandi; quo factò, interpositionem ejus nequaquam impedire incallescencie sensum comperiebam, quanquam, ex natura rei, intensiorem illius gradum remitteret.

Porro Mercurium eundem cum repurgato Argento, ad subtilem valde pulverem redactò, exploravi; at nullum omnino calorem percipere potui; quanquam eò ferar ut existimem si sufficiens Argenti foliati quantitas, ad peragendum Experimentum, mihi suppetiisset, me post aliquod temporis spatium incallescenciam suscitaturum fuisse, quamvis multò inferiorem eo, quem eadem Mercurii quantitas cum Auro produceret: At hoc non nisi in-transitu. Adjiciam nunc, me, ne mihi met imposuisse censerem, non tantum rem hanc explorasse in manu mea, quando variè erat pro caloris & frigoris ratione temperata, sed & in manibus aliorum, quos non parùm attonitos habebat,

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thers, who were not a little surpris'd and pleased at the event. And this I did more than once or twice; by which means I had, and still have, divers Witnesses of the truth of the Experiment, whereof some are noted Persons, and especially him to whom I last shewed it, which you will easily believe when I tell you 'tis the Learned Secretary of the Royal Society; to whom having given the Ingredients, I desir'd him to make the Experiment in and with his own hands, in which it

proved successful within somewhat less than a minute of an hour *

** Since this was written, the Noble and Judicious President of the Royal Society, the Lord Viscount Brouncker, made the same Experiment with some of the same Mercury, in his own hand with good success.*

10. And that which makes this Incalcescence the more considerable is, that being willing to husband my Mercury, a great part of which had been, as I guess'd, stolen from me before I employed it, I made these trials but with a drachm at a time, which scarce amounts in quantity to the bigness of half a middle siz'd Bean; whereas, if I could have made the Experiment with a spoonful or two of Quicksilver, and a due proportion of Gold, 'tis probable the heat would have been intense enough, not only to burn ones hand,

habebat, jurabatque eventus. Atque hoc ipsum pluries quàm semel bisve feci; unde mihi testes suppetunt Experimenti veritatis assertores, probatæ fidei viri, quorum unus erat Eruditus Societatis Regiæ Secretarius, quem, exhibitis ei Ingredientibus, rogabam, ut suis met manibus Experimentum caperet; in quibus & optatum successum minori quàm unius minuti spatio sortiebatur †.

† Ex quo tempore hoc literis fuit consignatum, Illustrissimus & Judiciosissimus Regiæ Societatis Præses, Dom. Vicecomes Brouncker, idem Experimentum suâ cum ejusdem Mercurii portione, manu cum successu peregit.

Atque, quod Incalcescentiam hanc insigniorem reddit, est, quod, cum parce uti Mercurio meo caperem, quippe cujus magna pars (ut conjicio) surrepta mihi fuerat, priusquam eum adhiberem, experimenta singula nonnisi cum una drachma peragebam, quæ vix fabæ mediocris dimidia magnitudinem aequat, cum, si copia mihi fuisset capiendi Experimentum cum cochleari uno alterove Mercurii pleno, supparique quantitate Auri, probabile sit, calorem inde oriturum fuisse satis intensum, ut non modò ureret manum, sed forsan & in Phiala vitrea rimas

hand, but percnance to crack a glass Vial ; since I have sometimes had of this Mercury so subtil, that when I employed but a drachm at a time, the heat made me willing to put it hastily out of my hand.

11. These things being matters of fact I scruple not to deliver them ; but I would much scruple to determine thence, whether those that are *Mercurii Corporum*, and were made, as Chymists presume, by extraction only from Metals and Minerals, will each of them grow hot with Gold, as, if I much mistake nos, I found *Antimonial Mercury* to do. And much less would I affirm, that every Metalline Mercury (though never so disposed to Incallescence) or even that of Silver or Gold it self, is the same with that which the Chrysopæan Writers mean by their *Philosophick Mercury*, or is near so noble as this. Nay, I would not so much as affirm, that every Mercury, obtained by extraction, even from the perfect Metals themselves, must needs be more noble and fit (as Alchymists speak) for the Philosophick work, than that which may with skill and pains be at length obtained from common Mercury skilfully freed from its recrementitious and heterogeneous parts, and richly impregnated

rimas ageret ; quandoquidem interdum hujus generis Mercurium habui adeo subtilem, ut, adhibente me singulis vicibus nonnisi drachmam unam, calor me adegerit ut properè manibus mixturam deponerem.

Hæc, cum sint res facti, tradere non dubito ; at valdè ambigerem exinde determinare, num qui appellantur Mercurii Corporum, paranturque, ut jactant Chymici, sola extractione ex Metallis & Fossilibus, eorum quilibet calorem acquirat cum Auro, quemadmodum, ni multum fallor, Mercurium Antimonialem acquirere comperi. Multoq̃ minus affirmarem, quemvis Mercurium Metallicum (quantumcunque ad Incallescenciam dispositum,) quin & Mercurium Argenti Aurive ipsius eundem esse cum eo, quem Scriptores Chrysopæi per Mercurium suum Philosophicum intelligunt, vel præstantiâ suâ ad hunc accedere. Quin imò, ne quidem assererem, quemlibet Mercurium, extractione etiam ab ipsis perfectis metallis impetratum, nobiliorem esse oportere, & (ut loquuntur Alchymistæ) ad Philosophicam operationem magis idoneum, quàm illum, qui, peritiâ & industriâ comite, obtineri tandem potest à Mercurio vulgari, à partibus suis recrementitiis heterogeneisq̃ purgato, subtilibusque & efficacibus metallorum Mineraliumve con-

with the subtle and active ones of congruous Metals or Minerals. These and the like points I should, as I was saying, much scruple at offering to determine in this place, where what I design'd to deliver was Historical, though I have not thought it impertinent to glance at the points lately mention'd, because those glances may intimate things conducive to the better understanding of what I have said, and have to say in this Paper.

12. I doubt not but what I have related and hinted has given you a Curiosity to know somewhat further of this Mercury: And I confess, that if there be any truth in what some of the most approved *Spagyrist*s have deliver'd about a Solvent of Gold that seems of kin, and perhaps is not much Nobler than one that I had; it seems allowable to expect, that even ours should be of more than ordinary use, both in *Physick* and *Alchymy*. But the misfortune I had to have lost a considerable quantity of it, being afterward increased by the almost sudden death of the only Operator I trusted in the making of it; I was altogether discouraged from repeating such a troublesome Preparation, especially being diverted by Business, Removes, Sicknefs, and more pleasing

gruorum partibus aberrime fato: Hæc, inquam, & similia hoc loco affirmare admodum vererer; cum hic nonnisi ea tradere instituerim quæ ad rei Historiam faciunt; quanquam præter rem non existimaverim, jamjam indigitatos rei hujus apices innuere, quod stricturæ istæ ea possint Lectori ingerere, quæ ad meliorem tum dictorum tum dicendorum intelligentiam conducere queant.

Non dubito, quin hætenus à me enarrata indigitataque Curiositatem in Te pepererint, aliquid amplius de hoc Mercurio cognoscendi: Et fateor, si quid veri subest ei, quod quidam ex probatissimis Spagyricis de quodam Auri dissolvente, quod affine videtur nostro, nec eo fortè multò est nobilius, tradiderunt; expectare fas fuerit, ipsissimum hoc nostrum in insignem cum in Medicina tum in Alchymia usum cedere posse. Verùm cum infortunium illud, quo insigniori quantitate ejus fui privatus, stipatum fuerit subitâ morte Operatoris unici, cui in eo parando penitus fidebam, mentem planè alienam ab iteranda tam molesta præparatione sensi; maximè cum occupationes, migrationes, adversa valetudo studiiæque gratiora aliorum me traherent; Et licet Experimenta quædam non spernenda,

sing Studies And though I have not forgot some not despicable Trials that I made with our Mercury, yet since they are not necessary to the Question that occasioned this Paper, I shall pass them over in silence, and only observe some few things I had almost forgot to tell you; namely first, that whereas 'tis usual to take four, 5 or 6, nay 8 or 10 parts of common Quicksilver to make an Amalgame with one of Gold, even when both are heated by the fire; I found our Mercury so congruous to that metal, that it would presently imbody with no less than an equal weight of it, and produce a pretty hard Amalgame or mixture, in which the Mercury was so diffused, that the Gold had quite lost its colour. Secondly, I shall add what for ought I know has not been yet observed, that this power of penetrating Gold and growing hot with it, is so inherent, not to say radicated, in our Mercury, that after it had been distilled from Gold again and again, I found it to retain that property. And lastly, whereas it may be suspected that this faculty may be quickly lost, (as that of the prepared *Bononian* Stone to receive Light, has been complain'd of as not durable) I found by trial that a sing'e drachm

da, cum Mercurio nostro peracta, memoriâ mea non exciderint; cum tamen ad Questionem illam, quæ scriptum hoc peperit, non sint necessaria, silentio ea involvam, paucula duntaxat annotaturus, quæ commemorare prope modum fuisset oblitus. Quorum primum est, quod, cum solenne sit, capere Mercurii vulgaris partes quatuor, 5 vel 6, imò 8 vel 10, ad Amalgama faciendum cum una parte Auri, etiam tum quando utrumque incaluit igne; Ego adeò congruum deprehenderim cum metallo illo Mercurium nostrum, ut non minus quàm æquale illius pondus intimè statim pervaderet, satisque durum Amalgama Crassius produceret, in quo adeò diffusus erat Mercurius, ut Aurum colorem suum penitus amitteret. Secundum est, (quod hætenus observatum fuisse haud putem,) vim scil. hanc, Aurum penetrandi cumque eo incallescendi, mordicè adeò inherere Mercurio nostro, ne dicam ita in eo radicatam esse, ut postquam iterum atque iterum ab Auro esset distillatus, proprietatis illius tenacem eum deprehenderim. Et denique, cum suspicio incessere Lectorem possit, facultatem hanc citò deperdi, (ut de preparato ad hauriendam lucem Lapide Bononiensi queruntur Authores,) experiundo didici; unicam drachmam Mercurii, certo modo paratâ, poss.

drachm of Mercury, made after a certain manner, did the third or fourth year after I had laid it by grow so hot with Gold, that I feared 't would have burnt my hand.

Thus far the Author to his Friend: But when he sent me the Paper, he accompanied it with the following lines ;

13. I have little at present to say to you about the Papers which this sheet accompanies, save that one of the chief Reasons that makes me backward to have the foregoing Observations communicated to the Curious, is, that I fear, we may thereby procure divers Queries and perhaps Requests, (relating to this Mercury) which I would by all means avoid, for divers Reasons, and particularly for this, that a great weakness of that part disables me to write with my own hand, and I know, you will not think it fit, I should about such a subject employ that of an *Amanuensis*. And therefore I cannot consent, this Paper should go out of your hands, unless you can think on some likely course to secure me from trouble, and from the unwelcome necessity of disobliging some, whilst I endeavour to gratify others. If this precaution be used, I may safely learn by means of your diffus'd

Ac-

post tertium quartumve à quo seposueram annum adeò cum Auro incaluisse, ut ne adureret manum meam timerem.

Hactenus Author noster ad Amicum suum: Sed cum mihi Chartas illas mitteret, voluit eas sequenti mantissâ locupletare ;

Non diu te morabor differendo de chartis hic junctis: Dicam solummodò, unam ex precipuis rationibus, quæ in vulgandis prægressis Observationibus cunctabundum me faciunt, hanc esse, quod vereor, nos hoc ipso variis circa Mercurium hunc Quæstionibus & fortè Sollicitationibus ansam duros, quas omni studio præcavere velim, cum ob alias, tum hanc ob causam, quod magna manuum mearum debilitas me impedit, quò minus meamet manu id consignare literis valeam, quod conscribi Amanuensis operâ consultum haud judicaveris. Proindeque concedere haud possum, scriptum hoc è manibus tuis dimitti, nisi rationem suggeras probabilem, quâ securum me præstes à molestia, atque ab ingrata necessitate repulsam dandi nonnullis, dum aliis obsecundare studeo. Hac cautelâ si utaris, potero amplissimæ tuæ consuetudinis beneficio citra molestiam edoceri, quid ii, qui tantâ peritiâ tantoque judicio valent, ut in hoc

Acquaintance, what those that are skilful and Judicious enough to deserve to be much considered in such an affair, will think of our Mercury, and whether, in case they have an esteem of it approaching to that of divers eminent *Chymists* (some of which importune me to impart it;) they judge the good, that the preparations of it (such as *precipitats* and *turbiths* of divers kinds, *Mercurius dulcis*, *Cinaber* made of the sulphur of Antimony, and with Gold, &c.) may do in Physick, is likely much to exceed the political inconveniences that may ensue, if it should prove to be of the best kind, and fall into ill hands. The knowledge of the opinions of the wise and skilful about this case, will be requisite to assist me to take right measures in an affair of this nature. And till I receive this information, I am obliged to silence.

14. Only in the mean while, I shall for the sake of the Inquirers into Mercurial *arcana* make bold to add a Secret, which, I think, will to divers *Philalethists* and other students of the Chymical Philosophers books seem a Paradox, if not an untruth; namely, That a Mercury, qualified to heat with Gold, and perhaps with other Powders, may be made by more waies than one or two; ex-

hoc negotio magni fieri mereantur, de Mercurio nostro sentiant; adhuc utrum, si estimationem de eo foveant illi supparem, quam præcellentium Chymicorum complures (quorum nonnulli me urgent ad eum communicandum) præ se ferunt, verisimile censeant, utilitatem, quam Præparaciones ipsius (cujusmodi sunt Præcipitata & Turbithi diversorum generum, Mercurius dulcis, Cinnabaris ex antimonio & auro cum parata, &c.) afferre possint rei Medicæ, longè superaturam esse incommoda illa politica, quæ nascitura forent, si fortè de præstantissima esset indole, atque in maleferiatis manus incideret. Sapientum & peritorum hoc in casu Opiniones cognoscere, necessarium mihi fuerit, ut recto tramite in istiusmodi negotio incedere mihi detur. Atque, donec edoctus id fuero, silentiis sacra colere teneor.

Interim in eorum gratiam, qui Arcana Mercurialia scrutantur, subjungere ausim secretum aliquod, quod Philalethis compluribus, aliisque, qui Chymicorum Philosophorum libris meditandis incumbunt, Paradoxum, quin & falsum fortè videbitur: Mercurium scilicet ad incalescendum cum Auro aliisque pulveribus idoneum, modis uno binove pluribus parari posse; cum par
expe-

experience having assured me (whatever Authorities or Theories may be urged to the contrary) that such a Mercury may be (I say not, easily or speedily, but successfully) prepar'd, not only by employing Antimony and solid Metals as *Mars*, but without any such Metal at all, or so much as *Antimony* it self.

15. Here I purposed to conclude: But because I am, as you know, very averse (which I declare my self to be on this occasion also) from making any promise to the publick, I think fit in this place to give you an Advertisement, and obviate a Scruple. I shall therefore admonish those Inquisitive *Spagyrist*s, that may be desirous to try, whether their purified Mercury be Incalescent, that they be not too hasty to conclude it is not so; nor to reject it, unless they have made the trial with Gold duly prepared. For I have found, that my Mercury did not grow hot with the smallest filings of Gold I could make (though indeed within a few hours after it did, without the help of fire, imbody with it into a hard *amalgama*,) which argued that the corpuscles of the Metal were not yet small enough to be suddenly penetrated by the Quicksilver: Nor will

experientiam certò mihi constat, (quicquid in contrarium obtendant Authoritates & Theoria-) talem Mercurium posse, (non dicam faciliè properève, sed cum successu) parari, non modò Antimonium solidaque Metalla, putà Martem, &c. adhibendo, sed citra ullius omnino Metallì, quin vel ipsius Antimonii, usum.

Hic statueram finem huic sermoni imponere: At cum agerremè, ut nosti, tum aliàs, tum hac imprimis occasione, promissi fidem publico obstringam, visum est mihi hoc loco Monitum aliquod suggerere, & Scrupulo cuidam obviam ire. Prius quod attinet, Curiosos illos Spagyricos, quos fortè tentandi cupidò incesse- rit, sitne purgatus ipsorum Mercurius incalescendi qualitate instruetus, monebo, ne nimis festinan- ter concludant ipsum eà praeditum non esse, nève eum rejiciant, nisi Experimentum fecerint cum Auro ritè preparato. Comperi quippe, Mercurium meum non incalescere cum ramentis Auri, omnium quas conficere poteram minimis, (quanquam reverà intra paucas exinde horas, sine ignis adminiculo, cum ipso in durum amalgama conflaretur;) quod argumento erat, Metallì illius corpuscula necdum exigua satis fuisse, ut properè à Mercurio penetrarentur: Neque quævis Auri calx

will every *calx* of Gold serve our turn,, as I have found by employing, without success, a very fine and spongy *calx* made after an uncommon way, the golden particles having, as it seem'd, some extremely fine though unobserved dust of the Additament sticking to them, which hindered the adhesion of the Mercurial ones. Now, the *calx* of Gold that I most used, as finding it still to do

|| *That is, by well,* was that made
melling together one by *Quartation* || (as
part of fine Alchymists call it.)
Gold, and 3

or 4 parts of cuppell'd Silver, and then putting the mass, wherein the Mettals are mixt, almost per minima, into purified Aqua-fortis, which dissolving the Silver only, leaves the Gold in the form of a fine calx.

But because 'tis not so easie, as even Chymists that have not tried imagine, to make good *calces* of Gold, and that in the way newly mentioned there needs fusion of the Gold and of Silver (for which many Chymists want conveniences,) and they are often imposed on by common Refiners, who here usually sell in wires such Silver for fine (which indeed it is comparatively,) as I have found not to be without mixture; I shall add, that by making an *amalgama* the common way with pure Gold and equal Mercury, and dissolving the Mercury in good

calx rem nostram conficiet; ut comperi, dum perquam subtilem spongiosamque calcem, modo non vulgari paratam, citra successum adhibui, in qua, ut videtur, apprimè tenuis sensumque fugiens Additamenti pulvis adharebat particulis aureis, & Mercurialium adhesionem præpediebat. Jam vero Calx auri, quâ plerumque utebar, successu ejus inductus, illa erat quæ Quartationis † (ut vocant)

beneficio paratur. † Hoc est, per fusioem conflando unam partem Auri puri, & tres quatuorve partes Argenti cupellati, ut vocant, & tunc immittendo massam, in qua Metalle miscentur quasi per minima, in purgatam *Aquam fortem*, quæ solum Argentum dissolvens, Aurum in forma Calcis relinquit.

At quia non adeò facile est, ut ipsi Chymici, qui manum operi non admovent, sibi imaginantur, bonæ notæ calces Auri parare, cumque in methodo jam memorata requiratur fusio Auri & Argenti (cujus peragende commoditate non pauci Chymici destituuntur,) cum etiam crebrò à vulgaribus Metallorum Purgatoribus fallantur, qui hic passim, filorum formâ, ejusmodi Argentum pro puro venditant (quale, comparate loquendo, reverâ est,) quod non esse mixturæ expers deprehendi; adjiciam, quòd, àum communi more amalgama conficitur cum Auro

Aqua-fortis, there will remain a powder, which, being well washed with fair water to dulcefie it, and kept a while in a moderate fire to dry it thoroughly without melting it, will become a *calx*, which I have more than once used with our Mercury with good success. 'Tis true, both in this way and in that (by *Quartation*,) *Aqua-fortis*, which is a corrosive liquor, is employed to bring the Gold to powder, and therefore in a diffident mind some suspicion may arise, that the Incallescence may proceed only from the action of the acid particles of the *menstruum*, which yet adhering to the corpuscles of the Gold works upon the Quicksilver, as *Aqua-fortis* is known to do: But, to omit those answers that cannot be given in few words, after I have taken notice, that, if the effect depends not on our Mercury (as prepared) but only on the *calx*, it appears not, why this should not grow hot with common Mercury as well as with ours; I shall need to add, for the removal of this subtil scruple, no more, than this plain Experiment, (which I twice or thrice made,) namely, that taking, instead of a *Calx* of Gold, a competent number of Leaves of Gold, such as Book-binders and the

puro & Mercurio vulgari, Mercuriusque dissolvitur bonâ Aquâ forti, remansurus sit pulvis, qui cum aqua pura, ad conciliandam ei, quam vocant, dulcedinem, probè elotus, & aliquandiu in temperato igne, ad eum penitus exiccandum citra fusionem, aservatus, talem Calcem præbebit, quâ pluries cum Mercurio nostro feliciter usus fui. Fateor equidem, tum in hac methodo, tum in illa quæ instituitur per Quartationem, adhiberi Aquam fortem, liquorem scilicet corrosivum, ad Aurum in pulverem redigendum, unde scrutanti genio suboriri suspicio poterit, Incalescentiam illam soli actioni acidarum particularum Menstrui acceptam ferendam esse, quod hærens etiamnum Auri corpusculis, in Mercurium operetur, solenni Aquæ fortis more. Verum, (ut eas responsiones sileam, quæ paucis tradi non possunt,) postquam notavi, quod, si Effectus hic non dependet a Mercurio nostro (ritè præparato,) sed à sola Calce, non pateat, quare hæc non incalescat aquæ cum Mercurio vulgari ac nostro; opus hæud fuerit, aliud quicquam ad scrupulum hunc eximendum, quàm obviū hoc Experimentum, quod sequitur, quodque bis tervè à me peractum fuit, adjicere: Sumpsi, inquam, Calcis Auri loco, sufficientem numerum Foliorum auri, qualibus utuntur Bibliopegi

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the Apothecary's use, this Gold, that was without the help of Salts reduc'd by beating to a sufficient thinness (inſomuch that ſeventy odd Leaves did not weigh a ſcruple,) I found (more than once) upon putting two or three times the weight of our Mercury to them, that a ſmart heat was preſently produced in my hand.

*& Aurifabri; hoc Aurum, quod citra ſalium opem tundendo re-
ductum erat ad tenuitatem ſuffi-
cientem (adeò ut ultra ſeptuaginta
folia vix unius ſcrupuli pondus æ-
quarent,) hoc, inquam, Aurum
comperi (unà vice pluries,) cum
binum trinumve Mercurii noſtri
pondus ipſi commiſcerem, inſig-
nem in manu mea calorem mox
peperiſſe.*

Some Obſervations, ſent by an Anonymous to the Publiſher, on ſeveral Paſſages in the two laſt Months Tranſactions, relating to ſome, till now un-obſerved, Qualities of the Air; to the Mixing and Fermenting of Liquors in vacuo; to the Hiſtory of Birds; the Anatomy of the Trunks of Vegetables; Baroſcopes, &c.

Honoured Sir,

HAVING long underſtood the freedom of addreſs, you have allowed to any candid and unprejudic'd perſons, whoſe general good wiſhes to the Common-wealth of Learning make 'em ambitious to impart ſomething, whereby they may promote the Empire of Man above other Creatures; I flatter'd my ſelf, it would be no unpardonable preſumption, to communicate ſome of my thoughts unto you, on ſuch a ſubject, as that the uſefulneſs of the matter may keep me from ſeeming altogether impertinent, and the ſmalneſs of my performance, argue the greatneſs of my deſires to ſerve you. This I reſolved to do by way of Animadverſions on the two laſt *Philoſophical Tranſactions*; and though I performed nothing more, I hop'd at leaſt, my Obſervations may do them the kindneſs, as ſhades intermixt with light, to render them more conſpicious. In hopes of this, I ſhall draw up my thoughts under this general Title of *Some Philoſophical Obſervations on ſome paſſages in the two laſt Months Tranſactions, viz. for Decemb. and January.*

I highly applaud the bold deſign to diſcover ſome, till now un-obſerved, Qualities in the Air; and, though the difficulty of the Subject, and modeſty of the Honourable Perſon, (leſs expected in